

We claim:

1. A composite comprising a metallic nanoparticulate substrate component and a polymeric ligand component, said ligand component comprising a nitrogenous coupling moiety.
2. The composite of claim 1 wherein said substrate comprises a nanoparticle selected from CdSe, CdS, CdTe, ZnS, ZnSe, Co and combinations thereof.
3. The composite of claim 1 wherein said nitrogenous moiety is selected from amino, pyridinyl and aminopyridinyl moieties.
4. The composite of claim 1 wherein said polymeric ligand component is selected from poly(ethylene glycol), poly(hexaethylene glycol), poly(hexadecylethylene glycol), poly(ϵ -caprolactone), poly(lactide), poly(glycolide), polyglycidyl, polypropylene oxide and combinations thereof.
5. The composite of claim 4 wherein said polymeric component comprises poly(ethylene glycol), said component with a terminus comprising a functional group moiety selected from hydroxy, alkyl, alkoxy, carboxylate, thymine, ammonium salt and substituted ammonium salt moieties.
6. An emissive nanoparticle composite comprising a CdSe nanoparticle and an ethylene glycol ligand component, said component having a nitrogenous terminus selected from pyridinyl and aminopyridinyl moieties.
7. The composite of claim 6 wherein said ligand component comprises poly(ethylene glycol) having a molecular weight of about 200 to about 5,000.
8. The composite of claim 6 wherein said ligand component comprises about 2 to about 20 ethylene glycol monomers.
9. The composite of claim 6 wherein said ethylene glycol component has a terminus comprising a functional group moiety selected from hydroxy, alkyl, alkoxy, carboxylate, thymine, ammonium salt and substituted ammonium salt moieties.

10. The composite of claim 6 wherein said CdSe nanoparticle further comprises a layer thereon selected from ZnS and ZnSe.

11. A polymeric ligand component comprising a poly(ethylene glycol) component and a first terminus comprising a pyridinyl moiety, said poly(ethylene glycol) component comprising at least 2 ethylene glycol monomers and a second terminus comprising a functional group moiety selected from hydroxy, alkyl, alkoxy, carboxylate, thymine, ammonium salt and substituted ammonium salt moieties.

12. The ligand component of claim 11 comprising up to about 100 ethylene glycol monomers.

13. The ligand component of claim 11 wherein a co-polymeric component is selected from poly(hexaethylene glycol), poly(hexadecylethylene glycol), poly(ϵ -caprolactone), poly(lactide), poly(glycolide), polyglycidyl, polypropylene oxide and combinations thereof.

14. A system for nanoparticulate dispersion, said system comprising:
a composite comprising a nanoparticulate substrate and a first ligand component, said composite in a first liquid medium; and
a second ligand component in a second liquid medium, said second ligand component at least partially soluble in said second liquid medium and selected from poly(ethylene glycol), poly(hexaethylene glycol), poly(hexadecylethylene glycol), poly(ϵ -caprolactone), poly(lactide), poly(glycolide), polyglycidyl, polypropylene oxide and combinations thereof.

15. The system of claim 14 wherein said second ligand component has an affinity for said nanoparticulate substrate greater than said first ligand component.

16. The system of claim 15 wherein said second ligand component comprises a pyridinyl terminus.

17. The system of claim 16 wherein said second ligand component comprises poly(ethylene glycol) and said second liquid medium is aqueous.

18. The system of claim 14 wherein said nanoparticulate substrate comprises CdSe and said second ligand component has a greater affinity for said substrate than said first ligand component.

19. The system of claim 18 wherein said second ligand component comprises poly(ethylene glycol) and a pyridinyl terminus.

20. A method of using ligand solubility to disperse a nanoparticulate substrate, said method comprising:

providing a composite comprising a nanoparticulate substrate and a first ligand component; and

contacting said composite with a second ligand component, said second ligand component in a liquid medium, said second ligand component at least partially soluble in said medium, said contact with said second ligand component dispersing said nanoparticulate substrate in said medium.

21. The method of claim 20 wherein said substrate comprises a nanoparticle selected from CdSe, CdS, CdTe, ZnS, ZnSe, Co and combinations thereof.

22. The method of claim 20 wherein said second ligand component is a polymer selected from poly(ethylene glycol), poly(hexaethylene glycol), poly(hexadecylethylene glycol), poly(ϵ -caprolactone), poly(lactide), poly(glycolide), polyglycidyl, polypropylene oxide and combinations thereof.

23. The method of claim 22 wherein said second ligand component comprises poly(ethylene glycol).

24. The method of claim 22 wherein said second ligand component further comprises a pyridinyl terminus.

25. The method of claim 24 wherein said second ligand component has an affinity for said nanoparticulate substrate greater than said first ligand component.

26. The method of claim 25 wherein said liquid medium is aqueous and contact with said second ligand component disperses said nanoparticulate substrate therein.